

ANNEX K

INSPECTION PLAN

**U.S. Army
Chemical Materials Agency**

**Project Manager for
Non-Stockpile Chemical Materiel**

**Inspection Plan for
Explosive Destruction System at
Dugway Proving Ground, Utah**

**Final
Revision 2**

**U.S. Army
Chemical Materials Agency**

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Non-Stockpile Chemical Materiel**

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Explosive Destruction System at
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March 2009

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1. INTRODUCTION

The Explosive Destruction System (EDS) treatment operation at Dugway Proving Ground (DPG) will be conducted under the jurisdiction of a Stipulation and Consent Order (SCO) issued by the Utah Solid and Hazardous Waste Control Board. This inspection plan has been prepared to meet inspection requirements of the Utah hazardous waste regulations.

Wastes generated from EDS treatment operations will be placed into waste containers inside the Environmental Enclosure (EE), and stored in a less-than 90-day waste storage area pending shipment to an offsite permitted treatment, storage, and disposal facility (TSDF) for further management.

2. GENERAL INSPECTION REQUIREMENTS

The EDS site will be inspected according to a prescribed inspection schedule designed to detect equipment deterioration and prevent potential equipment malfunctions that could cause a release of hazardous wastes to the environment or pose a threat to human health. The inspection schedule document and inspection logs will be located at the EDS site. At a minimum, the inspection program will include inspections of the equipment items listed in **Table K-1**. Many forms are used to address the inspections required. **Table K-2** correlates the inspection items with the forms used to meet the inspection requirements.

If a problem is discovered during an inspection, it will be remedied as soon as reasonably expected and/or within a regulatory required time frame, depending on the problem.

Table K-1. EDS Inspection Schedule

Item Number	Utah Regulation R315-8-2.6(b)(1)	Frequency Utah Regulation R315-8-2.6(b)(4)	Types of Problems Utah Regulation R315-8-2.6(b)(3)
EDS Trailer			
1(a)	Containment Vessel	Daily when in use	Visually inspect exterior including tubing, hoses, and valves for evidence of corrosion, leakage, or other physical damage such as tears, stresses, gouges, dimples, rips, cracks, fasteners, etc.
1(b)		Daily when in use	Visually inspect interior for evidence of physical damage such as gouges and dimples, etc.
1(c)		Daily when in use	Perform helium leak test for evidence of leakage or other physical damage to the vessel or piping, valves, or instruments connected to vessel door.
1(d)		Daily when in use	Conduct inspection and cleaning of sealing surfaces.
2	Fire Set Test	Daily when in use	Conduct High potential test through open vessel door and conduct continuity check of feed through and detonator terminal blocks to check for proper functioning.
3	EDS Trailer Secondary Containment Pan	Daily when in use	Visually inspect for evidence of corrosion, leakage, or other physical damage such as cracks, gaps, or holes.
4	Waste Handling System	Daily when in use	Visually inspect hoses and quick disconnects for evidence of physical damage such as tears, rips, and corrosion. Inspect to confirm hose connections are in place.
Load/Unload Areas			
5	Load/Unload Areas	Daily when in use	Visually check for evidence of spills, leaks, liquids, signs of damage to area.

Table K-1. EDS Inspection Schedule (Continued)

Item Number	Utah Regulation R315-8-2.6(b)(1)	Frequency Utah Regulation R315-8-2.6(b)(4)	Types of Problems Utah Regulation R315-8-2.6(b)(3)
Waste Handling System			
6	Waste Collection Drums and Drum Tubs	Daily when in use	Visually inspect 55-gallon drums for evidence of corrosion, leakage, or other physical damage. Visually check each 55-gallon drum containment system for any evidence of damage. Inspect to confirm hose connections are in place. Upon disconnecting the waste handling system from the waste containers, ensure that the closure devices (bungs) are closed and secure.
Communication			
7	Land Line Telephones, Cellular Telephones, Hand-Held Radios, Throat Microphones/Headsets	Daily when in use	Check for availability and operability.
8	Alarm Panels	Weekly	Check function and operability of audible/visual alarm.
9	Alarm Horns	Weekly	Check for presence and operability.
10	Closed-Circuit Television (CCTV) System	Weekly	Check for operability. Check visual clarity/tilt, pan, and zoom functions.
Security			
11	Fences	Weekly	Check for integrity, intrusion, or obstruction by vegetation; gaps at fence base.
12	Lighting	Weekly	Check for operability; vegetation is not masking lights.
13	Warning Signs	Weekly	Check for presence and legibility.

Table K-1. EDS Inspection Schedule (Continued)

Item Number	Utah Regulation R315-8-2.6(b)(1)	Frequency Utah Regulation R315-8-2.6(b)(4)	Types of Problems Utah Regulation R315-8-2.6(b)(3)
Fire Protection/Safety Equipment			
14	Fire Extinguishers	Prior to start of operation	Check gauge pressure, general condition, and service date.
15	Personnel Decontamination Station (PDS)	Weekly	Check for adequate decontamination solution supply, direct access, equipment available, and operability.
16	Spill Kit	Monthly	Check for sufficient inventory, items in good condition, and expiration dates have not lapsed (where applicable).
17	Self-Contained Breathing Apparatus (SCBA)	Monthly	Perform user function tests and inspection prior to donning; check pressure gauge to ensure the tank is full; check straps and base for wear or cracks; open air valve; breathe with facepiece to ensure that the air is available. Perform inspection per manufacturer's recommendation [29 CFR 1910.134(f)(ii) requires monthly inspection].
Air Monitoring			
18	Chemical Agent Monitors (MINICAMS® and DAAMS)	Every other day (per operation)	Visually inspect monitors for physical integrity; check diagnostic indicators on front panel of monitor housing for proper operation; inspect sample lines and connections, ensure heat trace is functional, ensure proper ventilation for exhaust, perform chemical agent challenge test and calibration.

Table K-1. EDS Inspection Schedule (Continued)

Item Number	Utah Regulation R315-8-2.6(b)(1)	Frequency Utah Regulation R315-8-2.6(b)(4)	Types of Problems Utah Regulation R315-8-2.6(b)(3)
Emergency Backup Power			
19	Emergency Generators	Monthly	Start unit, check voltage, current, and frequency output regularity and filter differential pressure.
20	Uninterruptible Power Supply	Weekly	Check that batteries are working properly; that the overall float voltage and output current and voltage are working properly per the distribution control system and that the batteries (cells/units) do not show any signs of corrosion, leaks, cracks, or other poor physical condition.
PMCS			
21	EDS system	Every 3 to 7 shots	Various inspection and maintenance requirements. See Operation and Maintenance Manual
EE			
22	Ventilation System	Daily when in use	Check function of equipment and that filters are in place and operable.

Notes:

CFR = Code of Federal Regulations
DAAMS = Depot Area Air Monitoring System
EDS = Explosive Destruction System
EE = Environmental Enclosure
PMCS = preventive maintenance checks and services

Table K-2. Inspection Items and Forms Used to Meet Inspection Requirements

Inspection Item	Inspection Item Number ^a	Frequency	Forms Used to Meet Inspection Requirements	Location of Where Inspection Item is Met on Form (As Applicable)
Containment Vessel	1(a) and 1(b)	Daily when in use	EDS PMCS Checklist and Checklist for EDS Pre-Operations	Steps 5 and 12 of EDS PMCS and steps 14 and 15 of Checklist for EDS Pre-Operations
Containment Vessel Helium Leak Test	1(c)	Daily when in use	Checklist for EDS Pre-Operations	Steps 8 and 9
			Munition Data Sheet (MDS)	MDS Procedure 9
Inspection/Cleaning of Sealing Surfaces	1(d)	Daily when in use	Checklist for EDS Pre-Operations	Step 15
Fire Set Test	2	Daily when in use	Checklist for EDS Pre-Operations	Step 18
EDS Trailer Secondary Containment Pan	3	Daily when in use	Daily EDS Operation Inspection Form	
Waste Handling System	4	Daily when in use	Daily EDS Operation Inspection Form	
Loading/Unloading Area	5	Daily when in use	Daily EDS Operation Inspection Form	
Telephones/Cellular/ Hand-held/throat Microphones/Headsets	7	Daily when in use	LCOs	Page 4
Alarm Panels	8	Weekly	EDS Setup PMCS Checklist	
Area Alarms (Horn)	9	Daily when in use	LCOs	Page 4
CCTV System	10	Daily when in use	LCOs	Page 4
Security	11 through 13	Weekly	Security Inspections Conducted by DPG Security	

Table K-2. Inspection Items and Forms Used to Meet Inspection Requirements (Continued)

Inspection Item	Inspection Item Number ^a	Frequency	Forms Used to Meet Inspection Requirements	Location of Where Inspection Item is Met on Form (As Applicable)
Fire Extinguishers	14	Weekly	Weekly Emergency Response Inspection Form	
PDS	15	Daily when in use	LCOs Checklist for EDS Pre-operations	Page 3 Table 2-2
Spill Kit	16	Weekly	Weekly Spill Kit Inspection Form	
SCBA	17	As required by OSHA regulations and per manufacturer's recommendation. Perform user function tests and inspection prior to donning.	SCBA Inspection Form	
Eyewash Stations	17a	Daily	If self-contained, inspect components, check pressure per manufacturer recommendations (ANSI Z358.1-2004)	Daily PDS equipment checklist
MINICAMS [®] /DAAMS	18	Daily when in use	LCOs Checklist for EDS Pre-operations	Table 2-2
Emergency Generators	19	Weekly	Weekly Emergency Backup Power (Diesel Generator) Inspection Form	
Uninterruptible Power Supply (Emergency Backup Power)	20	Daily when in use	LCOs	Page 4
EDS System	21	Every 3 to 7 shots	Documented in ECBC Maintenance Work Orders	

Table K-2. Inspection Items and Forms Used to Meet Inspection Requirements (Continued)

Inspection Item	Inspection Item Number ^a	Frequency	Forms Used to Meet Inspection Requirements	Location of Where Inspection Item is Met on Form (As Applicable)
EE Ventilation System	22	Daily when in use	LCOs	Page 3

Notes:

^a From table 1-1, Inspection Schedule, from the DPG EDS Inspection Plan

CCTV	=	closed-circuit television
DAAMS	=	Depot Area Air Monitoring System
DPG	=	Dugway Proving Ground
ECBC	=	Edgewood Chemical Biological Center
EDS	=	Explosive Destruction System
EE	=	Environmental Enclosure
LCO	=	limiting condition of operation
OSHA	=	Occupational Safety and Health Administration
PDS	=	Personnel Decontamination Station
PMCS	=	preventive maintenance checks and services
SCBA	=	self-contained breathing apparatus

3. SCOPE

This inspection plan addresses RCRA-regulated aspects and good industrial practices of operation. Items to be inspected include:

- EDS trailer and components
- EE
- Air monitoring equipment
- Less than 90-day waste storage areas
- EDS loading/unloading areas
- Fire protection/safety equipment
- Communication items and equipment
- Security fencing and signs
- Emergency backup power (diesel generators).

4. TYPES OF PROBLEMS TO IDENTIFY

The types of problems to identify during inspections are identified in **Table K-1**.

5. FREQUENCY OF INSPECTION

Inspection frequencies are provided in **Table K-1**. Inspections will be conducted at the specified frequency to identify and correct problems before they cause harm to human health or the environment. Inspection frequencies of individual items may vary, but are based upon the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if a problem remains undetected during inspections.

6. CORRECTIVE ACTIONS

Corrective actions are measures taken to address issues discovered during the inspection that must be rectified to prevent malfunctioning or deteriorated or defective equipment from potentially causing a release of hazardous materials to the environment or posing a threat to human health. Corrective actions may include repairs needed or further investigation to potential problems. Corrective actions are recorded and described on the inspection forms, and are dated, signed, and followed up by the inspector and signed by the inspector's supervisor when completed.

7. INSPECTION FORMS AND OTHER INSPECTION DOCUMENTATION

Table K-2 correlates inspection items with the forms used to meet inspection requirements. Inspection forms—organized by inspection frequency—are provided in **Appendix K-1**. The forms will be used to develop the DPG EDS operation inspection log. At a minimum, inspection logs must include:

- The date and time of the inspection
- The name of the inspector

- A notation of observations made
- The date, time, and nature of any repairs.

Appendix K-2 provides examples of the EDS operations forms that will also be used in meeting inspection requirements.

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APPENDIX K-1
INSPECTION FORMS

APPENDIX K-1 INSPECTION FORMS

Daily when in use:

- Load/Unload Areas
- Waste Handling System
- EDS Containment Pan
- Less Than 90-Day Container Storage Area
- Emergency Backup Power: Uninterruptible Power Supply Batteries, Overall Float Voltage, Charger Output Current and Voltage, and Individual Cells/Units.

Monthly:

- Fire Protection Equipment: Fire extinguishers
- Spill Kit
- Self-Contained Breathing Apparatus (SCBA) (Inspected prior to donning and/or at least monthly per Occupational Safety and Health Administration [OSHA] and Manufacturer Recommendation)
- Emergency Backup Power Diesel Generators.

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DAILY INSPECTION FORM

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DPG EDS Daily (when in use) Operational RCRA Inspection Form

EDS Unit: _____

Operation Day: 1 2

Inspected By: _____

Date: _____

Signature: _____

Time: _____

#	Activity	Results Yes or No?	Corrective Action Required? If Yes, provide detail below.
FireSet			
1	Was fire set test conducted and passed?		
Waste Handling System			
2	Are there any spills, leaks, or liquids in the area?		
3	Are there any signs of deterioration or physical damage (rips, tears or corrosion) to the hoses and quick disconnects?		
4	Are the hose connections in place?		
5	Drum Waste Tracking Number Confirmation: W1: _____ W1A: _____ 2 nd W1A: _____ W3: _____ SW: _____ (110gal) 2 nd SW: _____ (55gal)		
6	Are containers in good condition (no signs of deterioration, rust, corrosion, or leaking?)		
7	Are containers marked with the words "Hazardous Waste" and the accumulation start date, and contents?		
8	Is there appropriate aisle spacing between containers and interior walls of the EE?		
9	Does the secondary containment (drum tubs) system show signs of cracks, flaking, chips, gouges, or obvious wear of protective coating?		
10	Does the secondary containment (drum tubs) have signs of drips, spills, or leaks or any accumulated liquids?		
11	Was an initial inspection performed when wastes were placed into the container (Subpart CC)?		
12	Are there any visible cracks, holes, gaps, or open spaces into the interior of the container when cover and closure devices are secured in the closed position upon disconnection from the waste handling system (Subpart CC)?		
13	Does the container meet DOT requirements (Subpart CC)?		
14	Are any repairs required (Subpart CC)?		

#	Activity	Results Yes or No?	Corrective Action Required? If Yes, provide detail below.
EDS Trailer Secondary Containment Pan			
15	Does the secondary containment system show signs of corrosion, leakage or other physical damage, such as cracks, gaps or holes??		
Loading and Unloading Area			
16	Are there any leaks, spills, deterioration, or damage?		

Comments/Discrepancies/Remedial Work Order:

Date Corrective Action Completed: _____ Environmental Officer: _____

Comments: _____

WEEKLY INSPECTION FORMS

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Weekly Emergency Response Inspection Checklist
DPG EDS Site Operation

Inspected By: _____ Date: _____

#	Items to Be Inspected	Results	Corrective Action Required?
		Acceptable Yes or No	Yes or No? If Yes, provide detail below.
1	Emergency Response Equipment/Spill Kit: Inspect to determine whether sufficient inventory is available, items are in good condition, and expiration dates have not lapsed (where applicable).		
2	Emergency Generators: Does unit start? Is voltage current and frequency output regularity sufficient? Is filter differential pressure in the correct range?		

Comments/Discrepancies/Corrective Action:

Date Corrective Action Completed: _____

Supervisor Signature: _____

Comments: _____

EDS at DPG Weekly Emergency Backup Power (Diesel Generators) Inspection Form

Inspector Name _____ Date of Inspection: _____		
Time of Inspection: _____		
SPECIFY LOCATION: () Outside Fence () Inside Fence		
ITEMS TO BE INSPECTED	RESULTS	CORRECTIVE ACTION REQUIRED?
	Yes or No?	Yes or No? If yes, provide detail below.
Emergency Generators		
<ul style="list-style-type: none">Does unit start and the uninterruptible power supply battery power engage?Is voltage output regularity sufficient?Is filter differential pressure in the correct range?		
<u>CORRECTIVE ACTION:</u>		
Description of Corrective Action: _____		

Date Corrective Action Completed: _____		
Supervisor Signature _____		
Comments: _____		

APPENDIX K-2
EXAMPLE FORMS

LIMITING CONDITIONS OF OPERATIONS (LCOs)

Limiting Conditions of Operations (LCOs)

Test Item ID# _____

Date: _____

These LCOs can be mitigated or deviated based on informed decisions by the EDS Site Representative and ECBC crew supervisor/site safety officer. LCOs will apply to start of operations and may change depending upon whether or not the RCWM and explosives are onsite and whether or not unpack has started. Once the EDS vessel door has been closed and sealed, explosive hazards are considered contained.

Condition	Operation	Limit	Initials
External Events			
Lightning		Explosive operations would be suspended if lightning is predicted or observed.	
Heat		Workers must remain well hydrated. Limit to be implementation of heat stress plan—pre-screening has been completed and heart-rate monitoring is in place.	
Earthquake		Operations suspended until inspection of equipment and buildings is complete.	
Hurricane		Operations suspended if hurricane is predicted or observed.	
Flooding		Operations suspended until waters recede and all equipment and buildings inspected.	
High Winds		Operations suspended unless approved by System Manager.	
Chemical Accident/Incident (CAI)		Operations suspended until authorized to proceed by RDECOM EOC.	

Limiting Conditions of Operations (LCOs)

Condition	Operation	Limit	Initials
Personnel			
Chemical Operator	to start operations:	Chemical operator team, 1 maint person	
	to continue operations:	Chemical operator team, standby personnel can replace team members as required.	
Explosive Operator	to start operations:	Team leader and team member	
	to continue operations:	Team must be onsite for explosives handling, detonation, and at door opening.	
PMNSCM Site/Test Mgr	to start operations:	Must be onsite	
	to continue operations:	Must be available	
Test Director	to start operations:	Must be present	
	to continue operations:	Must be available	
ECBC Lead	to start operations:	Must be onsite, may be part of crew	
	to continue operations:	Must designate someone to act on their behalf if not onsite; must be available	
Data Recorder	to start operations:	Must be present	
	to continue operations:	Replacement worker available from onsite management staff	

Limiting Conditions of Operations (LCOs)

Condition	Operation	Limit	Initials
Site Support			
PDS	to start operations:	Must be available	
	to continue operations:	Must be operational	
Fire & Emergency Services	to start operations:	Must be available, but not needed onsite.	
	to continue operations:	Must be available, but not needed onsite.	
EE Air Flow	to start operations:	Must be operational IAW air handling plan	
	to continue operations:	Must operate; although if failure occurs, respirators can be upgraded and operations continue. Industrial monitors can be used to reduce PPE. Cannot vent vessel or open door if filter is down.	
Monitoring			
EE Monitoring	to start operations:	All monitoring equipment for EDS must function and be in place.	
	to continue operations:	Cannot vent vessel or open door without monitoring equipment operational.	
Video Feed	to start operations:	Video feed to CP is required to start. Treaty video is recommended but work will not be delayed during repairs.	
	to continue operations:	Video feed not required as long as communication with team is possible. Personnel will make repairs inside EE in the same PPE as the crew working in the EE at the time. No repairs will be made prior to door sealing.	

Limiting Conditions of Operations (LCOs)

Condition	Operation	Limit	Initials
Communications			
External Communications	to start operations:	Required for key people. Must have communications with Range Control (either by telephone or by cellular communications).	
	to continue operations:	Required for key people. Must have communications with Range Control (either by telephone or by cellular communications).	
Wireless Communications	to start operations:	Required for key people	
	to continue operations:	Not required as long as alternate communication is available. Possible sources are hand held radios, signs, CCTV, and telephones.	
Physical Security	to start operations:	Must be available to support operations	
	to continue operations:	Must be operational	
Electric Power	to start operations:	Required. Back-up power required for critical equipment.	
	to continue operations:	Back-up on line.	
Lighting	to start operations:	Lights must be on to conduct operations.	
	to continue operations:	Lights must have back-up power source.	
Water	to start operations:	Must be available to support operations	
	to continue operations:	Must be available to continue operations	

Limiting Conditions of Operations (LCOs)

Condition	Operation	Limit	Initials
SOP Pre-Op Checklist	to start operations	Must be available and completed to commence operations	
	to continue operations	Must be available and completed to continue operations	
Air Compressor	to start operations	Must be operational to commence operations	
	to continue operations	Must be operational to continue operations	

Signature EDS System/Test Manager

Date

Signature EDS Crew Supervisor

Date

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EDS MUNITION DATA SHEET (MDS)

PROJECT MANAGER FOR NON-STOCKPILE CHEMICAL MATERIEL

Research Development and Engineering Command
Dugway Proving Ground, Utah

EXPLOSIVE DESTRUCTION SYSTEM PHASE 2 UNIT

MUNITION DATA SHEET

Processing Date(s): _____

MUNITION ID: _____

EDS Crew Supervisor: _____

EDS System Manager: _____

Data Collector(s): _____

MUNITION ID: _____

[illegible]

Page ____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	EVENT	TIME
1	EDS Daily Startup: (Crew Arrival Time)	
2	Time EDS team/safety brief completed:	
3	Munition/Cylinder nomenclature:	
4	Munition/Cylinder fill/weight:	
5	PINS assessment:	
6	PINS file number: N/A	
7	Caliber/Size:	
8	Burster and/or Fuze:	

ITEM#	PROCEDURE 6 (Transfer Munition)	TIME
9	PPE: OSHA Level _____	
10	Munition/Cylinder ID: _____	
11	Time munition arrival at EDS site	
12	Describe munition configuration (i.e., bagged/unbagged, pistol/fuze POP'd, munition leak sealed, overpacked/not overpacked, level of deterioration, etc.)	
13	OBTAIN PHOTOGRAPHS of munition.	

ITEM#	PROCEDURE 7 (Assembly of FSS and Munition)	TIME
14	Note orientation of fuze or valve as placed in the FSS.....(Door end or Aft end)	
15	EBW feedthrough locations (Enter CSC or LSC): CH1 ____ CH2 ____ CH3 ____ CH4 ____	
16	Time munition/cylinder loaded into vessel (End of procedure 7)	

ITEM#	PROCEDURE 9 (Closing and Sealing Vessel Door)	TIME
17	Gap Size between clamps (hand-tight): Top: _____ Bottom: _____	
18	Gap Size between clamps (hydraulic): Top: _____ Bottom: _____	
19	Time vessel door closed and secured	
20	Vessel door leak seal rate: _____ cc/sec accepted / not accepted (Circle One)	
21	HV Flange leak seal rate: _____ cc/sec accepted / not accepted (Circle One)	
22	Time leak test completed (Leak Detector Turned OFF)	

ITEM#	PROCEDURE 10 (Detonate Munition)	TIME
23	Firing System Used: A / B (Circle one)	
24	Det Cable Check (milliohms): CH1 ____ CH2 ____ CH3 ____ CH4 ____ PASS/FAIL (Circle one)	
25	Time firing system continuity checks completed	
26	Time of detonation	
27	Time firing system shutdown completed	
28	Vessel Pressure: _____ psig Vessel Temp: _____ °C	

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 11 (Collect Initial Vapor and Liquid Samples), if required	TIME	
29	Neat Vapor Sample Number: _____		
30	Neat Liquid Sample Number: _____		
31	Vessel Pressure: _____ psig Vessel Temp: _____ °C		
	Post-Sample Rinse Through Valve Panel Tank 1 Tank 2		
32	Initial tank volume (Liters)		
33	Tank temperature (°C)		
34	Final tank volume (Liters)		
35	Volume transferred to vessel (Liters)		
36	Weight of volume added to vessel (Lbs.)		
37	Time vapor sample collected (container removed from sample line).....		
38	Sample valve assembly Contaminated (NRT Alarm)? Y / N (Circle one)		
39	If YES, Note monitoring level _____		
40	Time sample(s) ready for transport (Obtain copy of C-of-C form)		
	Sample results appear on Lab Sample Worksheet		
41	Time liquid sample collected (container removed from sample line).....		
42	Sample valve assembly Contaminated (NRT Alarm)? Y / N (Circle one)		
43	If YES, Note monitoring level _____		
44	Time sample(s) ready for transport (Obtain copy of C-of-C form)		
	Sample results appear on Lab Sample Worksheet		

ITEM#	PROCEDURE 12 (Chemically Treat EDS Vessel Contents)	TIME	
	Supply Tanks Tank 1 Tank 2		
45	Initial tank volume (Liters)		
46	Tank temperature (°C)		
47	Transfer start time		
48	Time supply tank heaters turned off		
49	Transfer stop time		
50	Final tank volume (Liters)		
51	Volume transferred to vessel (Liters)		
52	Weight of volume added to vessel (Lbs.)		
53	Time vessel agitation started		
54	Time vessel heaters turned ON		

Solution	lbs/L	Solution	lbs/L	Solution	lbs/L
20% NaOH	2.70	35% H ₂ O ₂	2.50	95% Denatured Alcohol	1.75
90% MEA	2.25	Alcoholic NaOH	2.22	20% NaHSO ₃	2.54
45% MEA	2.22	H ₂ O	2.21	100% Acetone	1.75
90% MEA-10% NaOH	2.30	HPO ₂ TM	2.72		

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 13 (Collect Treated Liquid Sample)	TIME
55	Treatment Sample #: <u>1</u> Type: _____	
56	Time vessel agitation halted for liquid sample	
57	Sample Number: _____	
58	Vessel Pressure: _____ psig Vessel Temp: _____ °C	
	Post-Sample Rinse Through Valve Panel	
	Tank 1	Tank 2
59	Initial Tank Volume (Liters)	
60	Tank Temperature (°C)	
61	Final Tank Volume (Liters)	
62	Volume Transferred To Vessel (Liters)	
63	Weight of volume added to vessel (Lbs.)	
64	Time sample collected (sample valve assembly removed from line)	
65	Sample valve assembly Contaminated (NRT Alarm)? Y / N (Circle one)	
66	If YES, Note monitoring level _____	
67	Time sample(s) ready for transport (Obtain copy of C-of-C form)	
	Sample results appear on Lab Sample Worksheet	
68	Time vessel agitation re-started	
69	Treatment Sample #: <u>2</u> Type: _____	
70	Time vessel agitation halted for liquid sample	
71	Sample Number: _____	
72	Vessel Pressure: _____ psig Vessel Temp: _____ °C	
	Post-Sample Rinse Through Valve Panel	
	Tank 1	Tank 2
73	Initial tank volume (Liters)	
74	Tank Temperature (°C)	
75	Final tank volume (Liters)	
76	Volume transferred to vessel (Liters)	
77	Weight of volume added to vessel (Lbs.)	
78	Time sample collected (sample valve assembly removed from line)	
79	Sample valve assembly Contaminated (NRT Alarm)? Y / N (Circle one)	
80	If YES, Note monitoring level _____	
81	Time sample(s) ready for transport (Obtain copy of C-of-C form)	
	Sample results appear on Lab Sample Worksheet	

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 14 (Remove Liquid Waste From Vessel)	TIME
82	Vessel Pressure prior to drain: _____ psig Vessel Temp: _____ °C	
83	Time vessel drain began	
84	Sample number (If applicable): _____	
85	Sample container Contaminated (NRT Alarm)? Y / N (Circle one)	
86	If YES, Note monitoring level: _____	
87	Time sample(s) ready for transport (Obtain copy of C-of-C form, if applicable)	
88	Time vessel drained of liquid waste.....	
89	Pressure after completion of drain: _____ psig	
89		
	Waste Drum Computation	
		DRUM 1 DRUM 1A
90	Initial drum net weight (Lbs.)	
91	Calculated drum net weight (Lbs.)	
92	Final drum net weight (Lbs.)	
93	Weight of drained liquid waste (Lbs.)	
94	Drum Label Number	
95	BACKFLUSH Water Through Vessel Drain? Y / N (Circle one) / Number of Flushes _____	
	See Inserted "Backflush Sheet"	

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 15 (Rinse Vessel)	TIME
96	Vessel Rinse No. <u>1</u> Rinse Type: _____	
	Supply Tanks	
97	Initial Tank Volume (Liters)	
98	Tank Temperature (°C)	
99	Transfer start time	
100	Transfer stop time	
101	Final tank volume (Liters)	
102	Total volume transferred to vessel (Liters)	
103	Weight of volume added to vessel (Lbs.)	
104	Time vessel agitation started	
105	Time vessel heaters turned ON	
106	Time vessel agitation halted/heaters turned OFF	
107	Time vessel agitation re-started	
108	Time vessel agitation halted	
109	Rinsate Sample Number: _____	
110	Vessel Pressure: _____ psig Vessel Temp: _____ °C	
	Post-Sample Rinse(s) Through Valve Panel	
111	Initial supply tank volume (Liters)	
112	Tank Temperature (°C)	
113	Final supply tank volume (Liters)	
114	Total Volume Transferred To Vessel (Liters)	
115	Weight of volume added to vessel (Lbs.)	
116	Time sample collected (sample valve assembly removed from line)	
117	Sample valve assembly Contaminated (NRT Alarm)? Y / N (Circle one)	
118	If YES, Note monitoring level _____	
119	Time sample(s) ready for transport (Obtain copy of C-of-C form)	
	Sample results appear on Lab Sample Worksheet	
120	Time vessel drain began	
121	Time vessel drained of rinsate	
	Waste Drum Computation	
122	Initial drum net weight (Lbs.)	
123	Calculated drum net weight (Lbs.)	
124	Final drum net weight (Lbs.)	
125	Weight of drained rinse material (Lbs.)	
126	Drum Label Number	
127	BACKFLUSH Water Through Vessel Drain? Y / N (Circle one) / Number of Flushes _____	
	See Inserted "Backflush Sheet"	

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 15 (Rinse Vessel)			TIME
128	Vessel Rinse No. <u>2</u> Rinse Type: _____			
	Supply Tanks	Tank 1	Tank 2	
129	Initial tank volume (Liters)			
130	Tank Temperature (°C)			
131	Transfer start time			
132	Transfer stop time			
133	Final tank volume (Liters)			
134	Total volume transferred to vessel (Liters)			
135	Weight of volume added to vessel (Lbs.)			
136	Time vessel agitation started			
137	Time vessel agitation halted			
138	Vessel Pressure prior to drain: _____ psig Vessel Temp: _____ °C			
139	Time vessel drain began			
140	Time vessel drained of rinsate			
	Waste Drum Computation	DRUM 1	DRUM 1A	
141	Initial drum net weight (Lbs.)			
142	Calculated drum net weight (Lbs.)			
143	Final drum net weight (Lbs.)			
144	Weight of drained rinse material (Lbs.)			
145	Drum Label Number			
146	BACKFLUSH Water Through Vessel Drain? Y / N (Circle one) / Number of Flushes _____			
	See Inserted "Backflush Sheet"			

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 16 (Collect Vapor Sample), if required	TIME
147	Helium cylinder pressure before flush: _____ psig. / pressure after flush: _____ psig.	
	TEDLAR BAG/SAMPLE VALVE ASSEMBLY Rinse Vapor Sample	
148	Vapor Field Sample Number :	
149	Vessel Pressure : _____ psig Vessel Temp : _____ °C	
150	Time Tedlar Bag sample collected (bag removed from sample line)	
	Post-Sample Rinse(s) Through Valve Panel (only if a SS sample valve assembly is used)	
	Tank 1	Tank 2
151	Initial supply tank volume (Liters)	
152	Tank Temperature (°C)	
153	Final supply tank volume (Liters)	
154	Total Volume Transferred To Vessel (Liters)	
155	Weight of volume added to vessel (Lbs.)	
156	Time sample collected (sample valve assembly removed from line)	
157	Sample valve assembly Contaminated (NRT Alarm)? Y / N (Circle one)	
158	If YES, Note monitoring level	
159	Time sample(s) ready for transport (Obtain copy of C-of-C form)	
	Sample results appear on Lab Sample Worksheet	

ITEM#	PROCEDURE 17 (Open Vessel Door)	TIME
160	Time vessel door opened	

ITEM#	PROCEDURE 18 (Sample and Remove Solid Waste)	TIME
161	DESCRIBE contents of remaining solids in vessel (i.e., burster components, pistol functioned? mustard heels, sludge, detonation results, liquid residue). Separate munition components on a plastic sheet by type if possible. TAKE PICTURES.	
162	Visible Evidence of residual agent? (Y / N)	
163	Visible Evidence of confined explosives? (Y / N)	
164	Visible Evidence of explosive chunks? (Y / N)	
165	Notes:	
166	Drum Label Number (solid waste):	
167	Sample Jar Sample Number :	
168	Time solids sample collected.....	
169	Sample jar contaminated (NRT Alarm)? Y / N (Circle one)	
170	If YES, Note monitoring level	
171	Time sample(s) ready for transport (Obtain copy of C-of-C form)	
172	Time solid waste removal from vessel completed	
	Sample results appear on Lab Sample Worksheet	

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 19 (Clean and Prepare Equipment) [Same Campaign]	TIME
173	List in the COMMENT section the name of the items disassembled, decontaminated, and reassembled from the vessel door.	
174	List in the COMMENT section the name of the items replaced due to serviceability.	
	Open-Head Waste Drum Computation	
175	Drum Label Number _____	
176	Initial drum weight (Net Lbs.) _____	
177	Final drum weight (Gross Lbs.) _____	
178	Time drum removed from EDS _____	
	Liquid Sump Waste (Drum 3) Computation	
179	Drum Label Number _____	
180	Initial drum weight (Net Lbs.) _____	
181	Final drum weight (Net Lbs.) _____	
182	Time drum removed from EDS _____	

ITEM#	PROCEDURE 20 (Service EDS Door & Drain Supply Tanks) [Different Campaign]	TIME
183	List in the COMMENT section the name of the items disassembled, decontaminated, and reassembled from the vessel door.	
184	List in the COMMENT section the name of the items replaced due to serviceability.	
	Open-Head Waste Drum Computation	
185	Drum Label Number _____	
186	Initial drum weight (Net Lbs.) _____	
187	Final drum weight (Gross Lbs.) _____	
188	Time drum removed from EDS _____	
	Liquid Sump Waste (Drum 3) Computation	
189	Drum Label Number _____	
190	Initial drum weight (Net Lbs.) _____	
191	Final drum weight (Net Lbs.) _____	
192	Time drum removed from EDS _____	

Data entry collected by:

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

ITEM#	PROCEDURE 21 (Monitor and Decontaminate the EDS) [Close-Out]	TIME
193	List in the COMMENT section the name of the items disassembled, decontaminated, and reassembled from the vessel door.	
194	List in the COMMENT section the name of the items replaced due to serviceability.	
195	DESCRIBE the process on how the EDS vessel and door were bagged in preparation for agent monitoring.	
Monitoring results (List separately on Lab Sample Worksheet)		
196	DESCRIBE which items were individually bagged, if any, for agent monitoring.	
Monitoring results (List separately on Lab Sample Worksheet)		
Open-Head Waste Drum Computation		
197	Drum Label Number	
198	Initial drum weight (Net Lbs.)	
199	Final drum weight (Gross Lbs.)	
200	Time drum removed from EDS.....	
Liquid Sump Waste (Drum 3) Computation		
201	Drum Label Number	
202	Initial drum weight (Net Lbs.)	
203	Final drum weight (Net Lbs.)	
204	Time drum removed from EDS.....	

ITEM#	PROCEDURE 22 (Break Down EDS Operations Area)	TIME
205	Time checklist for close-out Completed	

ITEM#	PROCEDURE 2	TIME
206	Completion time of post-operations close-out	
207	Elapsed time of complete operation:	
208	End date of operations:	

Data entry collected by:

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

BACKFLUSH SHEET (PROCEDURE 14)

ITEM#	PROCEDURE 14 (Remove Liquid Waste From Vessel)		
	BACKFLUSH Water Through Vessel Drain (if applicable)		
	Supply Tanks	Tank 1	Tank 2
X1	Water tank volume (Liters)		
X2	Tank temperature (°C)		
X3	Final tank volume (Liters)		
X4	Total volume transferred to vessel (Liters)		
X5	Weight of volume transferred to vessel (Lbs.)		
	Re-try to drain vessel	DRUM 1	DRUM 1A
X6	New Calculated drum net weight Lbs.)		
X7	Drum Label Number		
	Return to Line 92 to complete drum processing information		

ITEM#	PROCEDURE 14 (Remove Liquid Waste From Vessel)		
	BACKFLUSH Water Through Vessel Drain (if applicable)		
	Supply Tanks	Tank 1	Tank 2
X8	Water tank volume (Liters)		
X9	Tank temperature (°C)		
X10	Final tank volume (Liters)		
X11	Total volume transferred to vessel (Liters)		
X12	Weight of volume transferred to vessel (Lbs.)		
	Re-try to drain vessel	DRUM 1	DRUM 1A
X13	New Calculated drum net weight Lbs.)		
X14	Drum Label Number		
	Return to Line 92 to complete drum processing information		

ITEM#	PROCEDURE 14 (Remove Liquid Waste From Vessel)		
	BACKFLUSH Water Through Vessel Drain (if applicable)		
	Supply Tanks	Tank 1	Tank 2
X15	Water tank volume (Liters)		
X16	Tank temperature (°C)		
X17	Final tank volume (Liters)		
X18	Total volume transferred to vessel (Liters)		
X19	Weight of volume transferred to vessel (Lbs.)		
	Re-try to drain vessel	DRUM 1	DRUM 1A
X20	New Calculated drum net weight Lbs.)		
X21	Drum Label Number		
	Return to Line 92 to complete drum processing information		

Data entry collected by: _____

EDS MUNITION DATA SHEET

MUNITION ID: _____

Date: _____

BACKFLUSH SHEET (PROCEDURE 15)

ITEM#	PROCEDURE 15 (Rinse Vessel #____)		
	BACKFLUSH Water Through Vessel Drain (if applicable)		
	Supply Tanks	Tank 1	Tank 2
X22	Water tank volume (Liters)		
X23	Tank temperature (°C)		
X24	Final tank volume (Liters)		
X25	Total volume transferred to vessel (Liters)		
X26	Weight of volume transferred to vessel (Lbs.)		
	Re-try to Drain Vessel	DRUM 1	DRUM 1A
X27	New Calculated drum net weight Lbs.)		
X28	Drum Label Number		
	Return to Line 124 or 143 to complete drum processing information.....		

ITEM#	PROCEDURE 15 (Rinse Vessel #____)		
	BACKFLUSH Water Through Vessel Drain (if applicable)		
	Supply Tanks	Tank 1	Tank 2
X29	Water tank volume (Liters)		
X30	Tank temperature (°C)		
X31	Final tank volume (Liters)		
X32	Total volume transferred to vessel (Liters)		
X33	Weight of volume transferred to vessel (Lbs.)		
	Re-try to Drain Vessel	DRUM 1	DRUM 1A
X34	New Calculated drum net weight Lbs.)		
X35	Drum Label Number		
	Return to Line 124 or 143 to complete drum processing information.....		

ITEM#	PROCEDURE 15 (Rinse Vessel #____)		
	BACKFLUSH Water Through Vessel Drain (if applicable)		
	Supply Tanks	Tank 1	Tank 2
X36	Water tank volume (Liters)		
X37	Tank temperature (°C)		
X38	Final tank volume (Liters)		
X39	Total volume transferred to vessel (Liters)		
X40	Weight of volume transferred to vessel (Lbs.)		
	Re-try to Drain Vessel	DRUM 1	DRUM 1A
X41	New Calculated drum net weight Lbs.)		
X42	Drum Label Number		
	Return to Line 124 or 143 to complete drum processing information.....		

Data entry collected by: _____

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CHECKLIST FOR EDS SETUP PROCEDURES
(Includes PMCS Checklist and Checklist for EDS Pre-Operations)

PROCEDURE 2

CHECKLISTS FOR EDS SETUP PROCEDURES

The purpose of this procedure is to provide a guide to determine if the actions were completed for the initial setup of the EDS Trailer, daily startup, and daily post-munition operations closeout.

- 1.0 **USE** Table 2-1, EDS Setup Preventive Maintenance Checks and Services Checklist for EDS Trailer, to check whether initial EDS setup was accomplished upon first arrival to the EDS site.
- 2.0 **USE** Table 2-2, Checklist for EDS Pre-operations, to verify pre-operational checks were completed prior to the start of each disposal operation.
- 3.0 **USE** Table 2-3, Pre-operations Checklist for Equipment, Tools, and Supplies, to verify appropriate items are on hand prior to the start of each disposal operation.
- 4.0 **USE** Table 2-4, Checklist for End-of-Day Operations, to verify specific equipment is shut down overnight during operations requiring more than 1 day to complete.
- 5.0 **USE** Table 2-5, Checklist for Post-operations, to verify post-operational checks are completed at the end of each disposal operation.

Table 2-1. EDS Setup Preventive Maintenance Checks and Services
Checklist for EDS Trailer

No.	ACTIVITY	See Table 4-1 in EDS O&M Manual	Yes	No
1.	POSITION and DISENGAGE trailer.	EDS Setup PMCS No. 1.1		
2.	REMOVE tarp from trailer.	EDS Setup PMCS No. 1.2		
3.	FOLD DOWN and SECURE trailer steps, trailer platforms, and Reagent Supply Platform. ATTACH helium cylinder retainer bracket and SET UP helium compressed gas cylinder.	EDS Setup PMCS Nos. 1.3, 1.4, and 1.5		
4.	REMOVE containment vessel tie-down straps and shipping brace.	EDS Setup PMCS No. 1.6		
5.	INSPECT trailer and containment vessel supports.	EDS Setup PMCS No. 1.7		
6.	INSPECT and CONNECT electrical power to trailer. Have a qualified electrician CONNECT electrical power to trailer and verify it is properly grounded.	EDS Setup PMCS No. 1.8		
7.	CONNECT communications cable and clamp hanger drive motor power cable to clamp hanger drive motor.	EDS Setup PMCS No. 1.8		
8.	CHECK oil level and oil condition in both air lubricators. CONNECT air supply to trailer, SET UP air compressor, and TEST air compressor.	(1) EDS Setup PMCS No. 1.9 (2) Vendor Manual		
9.	CONNECT water supply to trailer. VERIFY all valves are closed.	EDS Setup PMCS No. 2		
10.	SET UP and CONNECT lighting fixtures in each corner of the EDS Trailer.	N/A		
11.	SET UP and INSPECT waste drums with spill containment pallets and scales.	EDS Setup PMCS Nos. 3 and 3.1		
12.	SET UP and INSPECT Reagent Supply Subsystem.	EDS Setup PMCS Nos. 4 and 4.1		
13.	INSPECT , CONNECT , and TEST hydraulic nuts.	EDS Setup PMCS No. 5		
14.	OPEN and INSPECT containment vessel door. INSTALL internal containment vessel door hardware.	EDS Setup PMCS No. 6		
15.	SET UP helium leak detector. SET helium cylinder regulator at 250 pounds per square inch gauge (psig) and leak detector regulator at 20 psig.	(1) EDS Setup PMCS No. 6.1 (2) Leak Detector User's Manual		
16.	INSTALL Tedlar [®] bag/vapor/liquid sample valve assemblies, as required.	EDS Setup PMCS No. 6.1		

Table 2-1. EDS Setup Preventive Maintenance Checks and Services
Checklist for EDS Trailer (Continued)

No.	ACTIVITY	See Table 4-1 in EDS O&M Manual	Yes	No
17.	INSPECT and LEAK TEST containment vessel door seal, door valves, fittings, high voltage flange, and flange seal.	EDS Setup PMCS No. 6.1		
18.	INSPECT and TEST Rotary Agitation Subsystem.	EDS Setup PMCS No. 8		
19.	TEST containment vessel heaters.	EDS Setup PMCS No. 9		
20.	OPEN containment vessel door.	EDS Setup PMCS No. 10		
21.	PREPARE Firing System: <ul style="list-style-type: none"> Preliminary setup of Firing System Install 50-foot detonator cables to containment vessel door. 	EDS Setup PMCS No. 11.1 EDS Setup PMCS No. 11.2		
22.	TEST Firing System: <ul style="list-style-type: none"> Continuity check of 50-foot detonator cables High potential test of Firing System Dry Run Load Test Firing System shutdown. 	EDS Setup PMCS No. 12 EDS Setup PMCS No. 13 EDS Setup PMCS No. 14.1 EDS Setup PMCS No. 14.2		
23.	If desired, DISCONNECT and SECURE Firing System.	EDS Setup PMCS No. 15		
24.	INSPECT loading table.	EDS Setup PMCS No. 16		

Signature: EDS Crew Supervisor

Date

Signature: PMNSCM Representative

Date

Table 2-2. Checklist for EDS Pre-operations

No.	ACTIVITY	Yes	No																		
1.	VERIFY monitoring is being conducted. <u>Monitoring Equipment</u> <u>Time Online</u> MINICAMS® _____ Depot Area Air Monitoring System _____																				
2.	DETERMINE personal protective equipment (PPE) selection based on overnight monitoring results or Annex I if overnight monitoring is not conducted. Cascade operational: _____YES _____NO _____N/A Required PPE Level: _____																				
3.	CONDUCT EDS team and safety meetings.																				
4.	VERIFY Personnel Decontamination Station is operational.																				
5.	VERIFY all valve handles are tight on valve stems. VERIFY all manually operated valves are closed. Note: Before continuation of a previous day's processing, OPEN any valves that were closed the previous day for system shutdown.																				
6.	CHECK fuel levels on air compressor (____) and power generator (____) and TURN ON . VERIFY incoming air pressure is 100 pounds per square inch gauge (psig) at the air compressor.																				
7.	CHECK air lubricator oil level and oil condition.																				
8.	TURN ON electrical power main disconnect switch, heater disconnect switch, and water supply to trailer. PERFORM Lamp Test. OPEN valve 52 and VERIFY air pressure is set at 80 psig at air lubricator's air pressure gauge.																				
9.	VERIFY helium bottle contains a minimum of 1,000 psig for the first day (____) and 750 psig for the second day (____) of operations. VERIFY helium cylinder regulator is set at 250 psig and leak detector regulator low pressure gauge is set at 20 psig.																				
10.	CHECK oil in helium leak detector. TURN ON and CALIBRATE helium leak detector. Refer to EDS Operations and Maintenance (O&M) Manual, Table 4-1, EDS Setup PMCS No. 6.1. VERIFY helium leak detector is turned off.																				
11.	PRE-POSITION decontaminant pail and rinse pail next to sample table.																				
12.	SET UP waste drums on the containment pallets and weight scales. Refer to EDS O&M Manual, Table 4-1, EDS Setup PMCS No. 3. OPEN valve 29 to D1. Note: VERIFY carbon filter cap is removed and carbon retaining collar is tight. VERIFY vessel waste drum hoses are connected from quick-connects QD1 and QD1A to drums 1 and 1A, respectively. VERIFY waste drum vent hoses from drums 1 and 1A are connected to waste drum vent T on drum 2. VERIFY valve 27 green OPEN light is illuminated. <table border="0" style="width: 100%;"> <tr> <td style="text-align: left;"><u>Waste Drum</u></td> <td style="text-align: left;"><u>Label Number</u></td> <td style="text-align: left;"><u>Initial Weight (lbs)</u></td> </tr> <tr> <td>1</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>1A</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>2</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>3</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>SW</td> <td>_____</td> <td>_____</td> </tr> </table>	<u>Waste Drum</u>	<u>Label Number</u>	<u>Initial Weight (lbs)</u>	1	_____	_____	1A	_____	_____	2	_____	_____	3	_____	_____	SW	_____	_____		
<u>Waste Drum</u>	<u>Label Number</u>	<u>Initial Weight (lbs)</u>																			
1	_____	_____																			
1A	_____	_____																			
2	_____	_____																			
3	_____	_____																			
SW	_____	_____																			
13.	FILL reagent and water tanks. Refer to Procedure 3. Tank 1 Fill: _____ Liters: _____ Temp. Setpoint: _____ Tank 2 Fill: _____ Liters: _____ Temp. Setpoint: _____ Containment Vessel Temp. Setpoint: _____ (CHECK all setpoints °C) Note: Set initial vessel temperature 5 degrees above target temperature.																				

Table 2-2. Checklist for EDS Pre-operations (Continued)

No.	ACTIVITY	Yes	No
14.	VERIFY vessel hinge jack support is properly positioned.		
15.	INSPECT vessel interior for the presence of foreign objects and/or damage, and REMOVE seal protector.		
16.	CLEAN and PREPARE containment vessel sealing surfaces. Refer to EDS O&M Manual, Table 4-2, Pre-Op PMCS No. 3.		
17.	<p>INSTALL Tedlar[®] bag adapter/vapor and liquid sample valve assemblies on valve panel. Refer to Procedure 13, Step 9.0 and Procedure 11, Step 12.0. VERIFY valve 20 is closed.</p> <p>Note: USE thread lubricant on external threads of valve piping before installation of vapor and liquid sample valves. CHECK torque (30 foot-pounds) on all valve fittings between valves 19, 21, 24, and 26.</p> <p>Tedlar bag numbers: _____ : _____</p> <p>Vapor sample valve assembly: _____ : _____</p> <p>Liquid sample valve assembly: _____ : _____</p>		
18.	PREPARE EDS Firing System (refer to Procedure 4).		
19.	<p>TEST EDS Firing System (refer to Procedure 4):</p> <ul style="list-style-type: none"> • Preliminary function checks of Firing System • High potential test of Firing System • Dry Run Load Test (if applicable). 		
20.	INSTALL new O-ring. INSTALL metal seal in accordance with EDS O&M Manual, Table 4-2, Pre-Op PMCS No. 3.		
21.	SECURE loading table to grating (refer to Procedure 5).		
22.	PRE-POSITION Fragment Suppression System cylinder top and frame/cylinder bottom assembly, assembled interior detonator jack assembly, and explosives based on munition expected for treatment (refer to Procedure 5). VERIFY Interior Detonator Jack Assembly is the correct size for the selected FSS.		
23.	PREPARE labels for Tedlar [®] bags, sample valve assemblies, and bottles in accordance with Sampling and Analysis Plan.		
24.	PREPARE labels for waste drums in accordance with site specific requirements.		
25.	VERIFY all valves are closed except for valves 1, 8, 11, 27, 29, 43, 45, and 52.		
26.	VERIFY lithium ion batteries are charged and TURN ON radio frequency transmitter.		
27.	VERIFY all panel pressure gauges are set at zero.		
28.	COORDINATE with Monitoring prior to start of operations.		
29.	COORDINATE with installation/site authorities prior to start of operations.		
30.	COORDINATE with emergency response personnel.		
31.	BEGIN operations at Procedure 6.		

Signature: EDS Crew Supervisor

Date

Signature: PMNSCM Representative

Date

Table 2-3. Pre-operations Checklist for Equipment, Tools, and Supplies

DESCRIPTION	QTY O/H	DESCRIPTION	QTY O/H
50-foot detonator cables (x4)		Helium compressed gas tank with pressure regulator assembly and cylinder bracket	
5-gallon water can		Hoe, vessel	
Air compressor		Hose, air compressor 2" x 100'	
Battery, lithium ion		Hose, air supply 1/2" x 120"	
Bleach solution		Hose, garden	
Brushes		Hose, helium 1/4" x 120"	
Burst disc cables		Hose, helium leak detector 1" x 72"	
Carbon filter		Hose, helium leak detector/connection 1" x 36"	
Carpenter's level		Hose, hydraulic pump 96"	
Catch tray (unpack area)		Hose, hydraulic nut 24" (x4)	
Chain-of-custody documents (for munition and sampling)		Hose, pan waste drum 1/2" x 84"	
Chock blocks		Hose, platform pan waste 1/2" x 48"	
Conical-shaped charge detonator clips		Hose, reagent source 1/2" x 84"	
Conical-shaped charges with O-rings		Hose, strainer 1/2" x 120"	
Crow's-foot wrench		Hose, supply 1/2" x 72"	
Debris pan		Hose, tensioner pump hose 96"	
Digital camera		Hose, trailer pan spray 1/2" x 72"	
Drain plug wrench		Hose, trailer pan waste 1/2" x 144"	
Drum, liquid waste		Hose, vacuum 1/2" x 72"	
Drum, solid waste		Hose, vessel effluent 3/4" x 72"	
Drum pump (backup)		Hose, vessel waste drum 3/4" x 72"	
Duct tape		Hoses, waste drum vent 1" x 72" (x2)	
Dust caps		Indelible ink pens	
EDS operator log		Interior and exterior shorting jacks	
Emergency eye wash		Key, interlocks	
Fire extinguishers		Key, vessel rotation/clamp control panel	
Firing Systems (A and B)		Leather gloves	
First-aid kit		Linear-shaped charge	
Feedthrough assembly		Linear-shaped charge detonator clips	
Fragment Suppression System		Linear-shaped charge retaining clips	
Generator		Loading table, front	
Grayloc® metal seal, high voltage flange		Loading table, rear (x2)	
Grayloc® metal seal, vessel door		Mechanical fingers	
Hammer, dead blow		Multimeter (fluke)	
Hand truck		Open-head and liquid waste drums	

Table 2-3. Pre-operations Checklist for Equipment, Tools, and Supplies (Continued)

DESCRIPTION	QTY O/H	DESCRIPTION	QTY O/H
O-ring, high-voltage flange		Scales, drum	
O-ring, vessel door		Secondary containment pallet	
Pendant, clamp hanger drive control		Spanner wrench, lock ring	
Pendant, hydraulic nut pump		Spanner wrench, 5" hex nut	
Pendant, leak detector		Spill containment tray	
Pendant, vessel rotation control		Spill kit	
Perma-Slik [®] lube		Sponges	
Plastic bags and sheeting		Stepladder	
Plaster-of-Paris bandages		Strain relief clips (large binder clips)	
Personal protective equipment in accordance with Annex I and Health and Safety Plan		Strap wrench	
Primary tool kit		Tongs	
Rags		Trailer lighting fixtures	
Reagent		Waste bag	
Rubber mallet		Waste drum vent T	
Rupture disc assembly and disc		Waste labels	
Sample valve assembly, 25 milliliters		Wooden container (explosive components)	
Sample valve assembly, 10 milliliters		Wrench, T-handle 1-5/16-inch	
Sampling containers and secondary packaging		Wrench, T-handle 5/8-inch	
Sampling tools			

Signature: EDS Crew Supervisor

Date

Signature: PMNSCM Representative

Date

Table 2-4. Checklist for End-of-Day Operations

No.	ACTIVITY	Yes	No
1.	VERIFY the following power switches are in the OFF position: <ul style="list-style-type: none"> • Supply pumps • Source pumps • Rotary Agitation Subsystem • Pan pump • Tank and vessel heaters • Helium Leak System • Firing System • Radio frequency transmitter. 		
2.	TURN OFF water supply to trailer.		
3.	VERIFY all containment vessel door valves are CLOSED. RECORD valves CLOSED.		
4.	TURN OFF EDS trailer main disconnect switch.		
5.	VERIFY all waste is placed in proper containers and sealed.		
6.	VERIFY waste drums are properly annotated and placed in the appropriate staging area.		
7.	VERIFY tools, equipment, and supplies are put in their proper places.		
8.	RECOIL 50-foot detonator cables and STORE along with the interior and exterior detonator shorting jacks and exterior detonator jack in the EDS Firing System accessory drawer, if necessary.		
9.	VERIFY front and back covers have been replaced on EDS Firing System, if necessary.		
10.	VERIFY security is coordinated for EDS Trailer and equipment.		
11.	COORDINATE with Monitoring prior to ceasing operations for the day.		
12.	COORDINATE with installation/site authorities prior to leaving the operations site for the day.		

Signature: EDS Crew Supervisor

Date

Signature: PMNSCM Representative

Date

Table 2-5. Checklist for Post-operations

No.	ACTIVITY	Yes	No
1.	VERIFY the following power switches are in the OFF position: <ul style="list-style-type: none"> • Supply pumps • Source pumps • Rotary Agitation Subsystem • Pan pump • Tank and vessel heaters • Helium Leak System • Firing System • Radio frequency transmitter. 		
2.	TURN OFF water supply to trailer.		
3.	VERIFY all containment vessel door valves are CLOSED.		
4.	TURN OFF EDS trailer main disconnect switch.		
5.	VERIFY all waste is placed in proper containers and sealed.		
6.	VERIFY waste drums are properly annotated and placed in the appropriate staging area.		
7.	VERIFY vessel door is open and training/shipping metal seal and door hinge support jack are in place.		
8.	RECOIL 50-foot detonator cables and STORE along with the interior and exterior detonator shorting jacks and exterior detonator jack in the EDS Firing System accessory drawer.		
9.	VERIFY tools, equipment, and supplies are put in their proper places.		
10.	VERIFY front and back covers have been replaced on EDS Firing System, if necessary.		
11.	VERIFY security is coordinated for EDS Trailer and equipment.		
12.	COORDINATE with Monitoring prior to vacating operations area.		
13.	COORDINATE with Site Manager prior to vacating operations area.		

Signature: EDS Crew Supervisor

Date

Signature: PMNSCM Representative

Date

SPECIAL REQUIREMENTS:

1. Operators are familiar with chemical accident/incident procedures and the EDS O&M Manual.
2. This procedure guide will be used by EDS Explosive Operators and/or Chemical Operators knowledgeable in chemical accident/incident response and assistance operations.
3. The certified operators shall be trained in the conduct of EDS O&M procedures to include setup of the EDS.

EQUIPMENT, TOOLS, AND SUPPLIES:

ITEM:

Clipboard and pen
EDS O&M Manual

QUANTITY:

as required
as required

DAILY PDS EQUIPMENT CHECKLIST

DAILY PDS EQUIPMENT CHECKLIST

DATE: _____

Item	Quantity.	Yes	No	Initial
CAM	1			
Radio, Hand-held w/spare battery	1			
Box, Plastic Bags, Clear, Large 6 mil	1			
Spill Pillows	10			
Stretchers	4			
Chairs	3			
Sump, PDS, Large	1			
Extension Cord for pump 50 ft.	2			
Hose, garden w/sprayer	4			
Sprayers Garden	2			
Drum, 55-gal and Funnel	1			
Garbage Cans, Large	2			
Pail, 1 gal	3			
Brush, long handle	4			
Waste Drum Sump	1			
Jack, Boot	1			
Mat, Roll-up	As Needed			
Tank, Air	As Needed			
Roll, Plastic Bags, Small, 6 mil	1			
Roll, Plastic Bags, Large, 6 mil	1			
Tent, blow up/expandable	1			
Pans, Step/Shuffle, Large	4			
Box, Bleach (Labeled with test results and paperwork)	1			
Fire Extinguisher	1			

Signature: PDS Crew Supervisor

Date

Signature: EDS Crew Supervisor

Date

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